

The University of Chicago

AN ANALYSIS OF
PREHISTORIC ANASAZI CULTURE
CHANGE

A PART OF A DISSERTATION SUBMITTED TO
THE FACULTY OF THE DIVISION OF THE
SOCIAL SCIENCES IN CANDIDACY FOR THE
DEGREE OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF ANTHROPOLOGY

JUNE, 1941

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JOHN BEACH RINALDO

CHICAGO, ILLINOIS

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SUMMARY AND INFERENCES

Some students of southwestern archaeology have advanced the hypothesis that most of Anasazi development was a direct and independent growth out of the culture of the Classic Basket Maker period. They maintain that such innovations as were made were probably conceived within the culture without outside suggestion. They also hold that the majority of changes came about through a series of small modifications rather than through a more radical development. As illustration of the independent development of an Anasazi trait they advance the development of pottery from unfired types to the more complex true pottery types. Meanwhile new evidence has been uncovered such as the occurrence of true pottery specimens of fine red ware in the same levels as the earliest types of crude pottery. The extent to which this hypothesis of independent Anasazi development is justified on the basis of recent evidence can be answered in part by illustrations from material in the preceding pages.

The Introduction of Traits

The large number of different kinds of tools and other subjects which the late prehistoric Anasazi used in the activity of vegetable food gathering and preparation shows the wide ramification in traits which grew out of the introduction of agriculture to the Anasazi. This introduction of agriculture

is manifesting itself in this instance. The weaving techniques, digging sticks, atlatl and other implements used by the Basket Makers are analagous to those used by the historic hunting and seed gathering cultures and do not show progress commensurate with the introduction of agriculture.

On the other hand radically different traits recovered from sites of the next (the Modified Basket Maker) period show that considerable development had taken place by A. D. 600. The important changes evident from Modified Basket Maker sites were: (1) the introduction of the bow and arrow in substitution for the atlatl and dart; (2) the addition of beans to the domesticated plants available to the diet; (3) the introduction of true pottery to take the place of basketry in many of the functions of storage, cooking and transportation; (4) progress in weaving as evidenced by the introduction of the spindle and the bone bodkin; (5) changes in dress such as the adoption of the squash blossom coiffure instead of short cropped hair for women. Furthermore, the construction of houses was made easier by the use of new tools introduced at this time, namely the hafted axe and hafted maul. Finally there are indications of additions and changes in the religious cult testified to by zoomorphic figurines, human effigy figurines and lightning stones recovered from sites of this period.

There is evidence that many of the traits of the Modified Basket Maker and early Developmental Pueblo periods were introduced from other cultures to the south. For example, the appearance in Anasazi sites of the excellent oxidized pottery of Mogollon types contemporary with the crude gray Anasazi pottery makes it seem probably that methods of manufacturing

pottery were introduced from the south. I believe that Fugitive Red represents an attempt to imitate the red pottery of the southern cultures before the Anasazi had actually learned the new methods of firing, and that the result of acquisition of this knowledge was Abajo Red on Orange. As further evidence of this contact with Mogollon culture there are occasional Abajo Red on Orange bowls which show designs similar both in elements and layout to decorated Mogollon bowls. Cross finds of pottery between Anasazi, Mogollon and Hohokam sites indicate that trade in pottery grew more frequent from A.D. 700 up to historic times.

Other traits such as mortars and shell bracelets have a much more frequent distribution in Mogollon and Hohokam cultures than they do in Anasazi culture and it seems probable that these traits were introduced to the Anasazi from the South at this time. The typical early Anasazi three notched axe is very similar to axes from Gallina sites and this trait may have been introduced from that region in which they are more characteristic. The distribution of axe types indicated that the hafted axe was first introduced in the northern part of the Anasazi area and did not diffuse south until after the full grooved axe had been developed. The general concept of human figurines of clay is a characteristic Hohokam trait at a very early period, and may have come to the Anasazi from Mexico by way of the Hohokam.

From Developmental Pueblo sites there are fewer traits without analogy in the pre-existing culture of the Basket Maker periods. The turkey, mushroom shape jar stopper, buttons, the labret, sandal stone, lap stone, antler chisel, and medicine

cylinder comprise the known list of traits introduced at this time. One of the most pronounced changes at this time was the increased use of the feather cloth robe. It seems possible that the idea of keeping the turkey was introduced at this time as a means of increasing the supply of feathers for these robes and for ceremonial uses.

On the whole, the Developmental Pueblo period appears to have been relatively stable, especially during the latter part of the period. This stability is well illustrated by the greater general uniformity of pottery design during this period than during the Great Pueblo period. The only proven introduction from other cultures was the labret. This trait is found rarely on Anasazi sites and is a characteristic trait of the early and late periods of the Hohokam culture, so that it seems probable that these objects were traded in from the south. The southern distribution of the few specimens recovered from Anasazi sites adds credence to this assumption.

There are indications of a cultural renaissance during the Great Pueblo period, although, to a certain extent, this impression may be false because so many of the traits supposedly introduced during this period are made of perishable materials and would not be preserved on the open sites of the Developmental Pueblo period, as they were in the sheltered cave sites of the Great Pueblo period.

However, using the evidence available there would appear to have been some progress in cooking methods, because such objects as wooden vessels, fire drills and hearths, wooden stirring paddles, baking slabs and baking slab supports have been recovered from sites of the Great Pueblo period. Possibly there

also were changes in clothing since such innovations as breech clouts, ponchos, scraps of tailored skin clothing, skull caps, and ornaments such as double-lobed beads and mosaics have been recovered from sites of this period. Needles made of yucca leaf tips, weaving combs and loop loom anchors comprise similar evidence of change in the allied activities of weaving and sewing. Changes in the ceremonial sector are testified to by such traits as "owls", "tiponi", (corn goddess symbols), ceremonial sticks, ceremonial stick bases, crescents and paint palettes. This development of ceremonial is further testified to by the more elaborate kiva paintings, and the number of Great Kivas which occur on Great Pueblo sites.

The majority of the traits represented by perishable materials from this period have not been recovered from sites of other cultures, either, because these too are mostly open sites. On the other hand such traits as mosaics, double-lobed beads, copper bells, and paint palettes are more characteristic of earlier and late periods of Hohokam and Mogollon cultures, and also have a more frequent distribution in the southern part of the Anasazi area. Therefore, it seems safe to assume that such traits are intrusive into the Anasazi culture from the Hohokam.

This renaissance did not last long beyond the close of the thirteenth century. During the latter half of the Great Pueblo period many large pueblos, apparently constructed for purposes of defense were built in the caves of the cliffs in the Kayenta, Chinlee, Grand Gulch and Mesa Verde districts. Many of these great cliff dwellings were abandoned towards the end of the thirteenth century when regression set in. It seems probable that this final abandonment was due to a combination of

drought and some such factor as internal strife, or encroachment by groups from the north. At the time of this latter migration from the cliff dwellings the Anasazi withdrew to the south and most of the sites of the next (the Regressive Pueblo) period are centralized farther to the south.

That this regression had set in is further indicated by the brief list of traits which were introduced from about A. D. 1300 up to the coming of the Europeans. The size of the list and some of the traits included therein are more indicative of a decline in activities than of development. The traits introduced during this period are arrow shaft straighteners, pemmican pounders, hooks, horn ladles, ginning tools, loom blocks, files and bone sounding rasps.

It seems probable that at least one trait on this list, the pemmican pounder, was an introduction from outside the Anasazi culture. This kind of artifact has been found only at Pecos on the eastern periphery of the Anasazi area, near the Plains area. It is very similar to artifacts with a wide distribution on the Plains. Therefore, it seems quite probable that this kind of implement was introduced to Pecos from that region.

Another trait, the pottery anvil, also has a very limited distribution in the Anasazi area. This kind of artifact has been recovered only from sites located along the southern periphery of the Anasazi area close to the Hohokam area. Inasmuch as very similar artifacts have a frequent distribution in the Hohokam culture, it seems very probable that they were introduced to the Anasazi from the Hohokam.

There are a few other traits which were possibly intro-

duced to Anasazi culture from the Mogollon culture, namely the pot polishing stone, mushroom shape jar stopper, and the centrally perforated worked sherd, (presumably used as a spindle whorl). It is quite possible that the idea of polishing pottery was introduced from the Mogollon culture at the same time as the method of firing pottery in an oxidizing atmosphere. One of the earliest Mogollon pottery types is polished, whereas the earliest indigenous Anasazi types are not. Hence, it would seem that the idea of polishing passed from the Mogollon to the Anasazi rather than in the opposite direction. The mushroom jar stopper may have been introduced from the Mogollon as part of the same complex of the use and manufacture of pottery. The introduction of the perforated disc sherd "spindle whorl" is no less probable, because it apparently is an integral part of the complex of the use of cotton fibre and the true loom. The most definite evidence of the introduction of these traits from the Mogollon culture is their appearance in that culture at a period prior to their appearance in the Anasazi culture.

The complexity of weaving with the true loom and the lack of intermediate steps between Basket Maker technique and the much more complex technique of weaving with the true loom furnishes with the botanical evidence of the introduction of cotton fibres, indication of the introduction of the true loom from outside.

Modification of Traits

A great many of the developments in Anasazi culture can be traced through a series of very small changes from traits of the Classic Basket Maker period, or from traits introduced during the Modified Basket Maker period. The material culture of

the Regressive Pueblo period is basically very little different from that of the much earlier Modified Basket Maker period. Most of the traits and some of the trait types used were the same in both periods. On the other hand, several additional traits and trait types were used during the Regressive Pueblo period. For example, tabular manos and manos wedge-shaped in cross-section were used during both periods, but two additional types, triangular and diamond-shaped in cross-section were developed during the Regressive Pueblo period. There is also a tendency for late pueblo manos used with slab metates to be longer than the earlier manos used with trough metates. Many other traits had changed considerably in type from the Modified Basket Maker period. For example, the types of arrow points used had changed, there being a difference in proportions and in manner of notching between the small slender diagonal notched Modified Basket Maker arrow point and the longer larger side notched with concave base type, and the long triangular arrow point without notches of the Regressive Pueblo period.

These differences are representative of differences between the majority of traits of the earlier and later periods. There were at least eight different types of axes made by the Anasazi, fifteen types of awls, six types of sandals and from two to six types of the following traits: arrow shaft smoothers, arrow heads, knives, digging sticks, digging stick blades, tchamahias, hoes, metates, manos, rubbing stones, hammer stones, mortars, pot supports, pot lids, pot rest rings, bags, aprons, fleshers, beads, stone pendants, shell pendants, tooth and claw pendants, bracelets, feather ornaments, rings, drills, coiffures, brushes, cists, pithouses, kivas, great kivas, surface rooms,

mauls, cradles, matting, feather boxes, dice, figurines, pipes, ceremonial sticks, and war clubs. Types of pottery, basketry, textiles and masonry were considerably more numerous. Over half of these traits, which were modified, are traits of both the Classic Basket Maker and Pueblo periods. Only five are not known Modified Basket Maker traits. This illustrates the basic stability of Anasazi culture after certain radical changes had been introduced during the Modified Basket Maker and early Developmental Pueblo periods.

On the other hand, although the central body of Anasazi traits remained the same from an early period up to historic times, there were a number of traits introduced from other cultures, as I have noted above; also a number of trait types possibly were introduced from similar sources. For example, the long bitted three-quarters grooved axe, long slender triangular arrow points, and cut shell pendants were quite possibly introduced from the Hohokam culture. These traits are characteristic of the early Hohokam culture and have a distribution in the southern part of the Anasazi area adjoining the Hohokam area. This distribution is indicative of their source.

Aside from the direct influence of other cultures through the introduction of new traits and trait types to the Anasazi, it seems possible that such changes would give impetus to change in other directly related traits. For example, the introduction of domesticated plants, with a consequent surplus of food, might have brought about the need for additional storage and cooking facilities, - needs fulfilled by the manufacture of true pottery vessels of larger capacity, (these would be easier to make with the materials at hand than baskets of equal

capacity), and the construction of large storage rooms in addition to the cists. These changes in turn may have given additional reason for the use of adjuncts to pottery, such as pot covers and pot rest rings, and of more effective tools, such as the hafted axe and mail to reduce the amount of labor required to construct larger storage rooms, in addition to cists.

Other changes which were made in traits were possibly made in order to increase their efficacy. For example, the primary difference between the early and late arrow points is the angle at which the notches were placed, the width of the basal portion of the stem and the length of the point. These changes were possibly the result of an attempt to produce a more effective way of binding the arrow point to the shaft, and at the same time to produce a point with greater power of penetration.

The change in the form of the axe might have taken place for similar reasons. It has been suggested that the full groove was made because the thicker pebbles used for the full grooved axes could be grooved on the faces without weakening the stone, whereas, if the thin pebbles of which the notched axes were made were grooved on the faces, they would be weakened dangerously and would break. The full grooved haft would also more effectively prevent the head of the axe from twisting in the haft so that the head would be at an angle other than perpendicular to the handle.

Another reason for modifications in type is that many artifacts were used in direct combination and physical contact with other artifacts so that the physical characteristics of one imposed limitations on the characteristics of the other. If one

element in the combination changed the other had to change also. An example of such change is the metate and mano combination. With the development of the metate from the basin and trough types to the slab type, the mano was no longer confined by the raised borders of the metate and was free to develop to greater length without rubbing at the ends on these borders. As a possible consequence of this relationship, the later manos are longer than the earlier ones used with the trough type metates.

The vast majority of traits of Anasazi material culture have a sufficiently wide distribution in number of specimens, area and time to indicate that they were accepted by the Anasazi culture as a whole. There are over one hundred such traits in the list of Anasazi elements. Some of these traits are spindles, loom anchors, needles, battens, true pottery, pot polishing stones, pot covers, pot rest rings, the bow and arrow, the arrow shaft straightener, the hafted axe, the hafted maul, bracelets, manos, metates, and axes.

The Acceptance and Rejection of Traits

Another group of traits are represented by such few specimens from so few sites that it seems probable that they were used only to a limited extent, and were never accepted by the majority of Anasazi groups of any one period. Examples of such traits are the clay rattles, clay turtle carapace imitations, and pemmican pounders from Pecos, the ginning tools, and pottery anvil from Canyon Creek Pueblo, the fringed head band from Broken Roof Cave, and the shell trumpets from Pueblo Bonito.

A possible reason why these traits were not accepted by more of the Anasazi is that they were not compatible with any of

the previously accepted traits of the culture. That is to say, they did not resemble in any way the traits of the pre-existing culture, and did not fit in well with any of the accepted customs. For example, there was no precedent in the Anasazi culture for the use of the shell trumpet. It could not have been easily and unobtrusively substituted in ceremonial for the flute or whistle, because they make such a different sound and are different in appearance and manner of playing. An additional factor in this case was the difficulty of securing the shells from their source on the Pacific coast.

In a similar way the pemmican pounder must have been a very useful tool to people of the Plains tribes who were accustomed to making pemmican and who placed so much dependence on it in their diet during certain seasons of the year. On the other hand, the Anasazi were an agricultural people to whom meat was only a supplementary item in diet, so the custom of jerking meat prevailed over that of making pemmican, and the pemmican pounder did not come into general use.

For the same reason of compatibility many of the traits introduced became widely used and accepted into the culture as a whole. One way in which this might have come about was for traits to be accepted because they were part of a complex of tools used in an improvement on a process which had already become established. For example, the development of true pottery, (really only an improvement over the unfired vegetable fibre tempered pottery), possibly brought with it a complex of such tools for its use as polishing stones, pot covers, pot rest rings, and worked sherd pottery smoothers. In a similar way the introduction of cotton fibre and the true loom must have brought

with it a series of tools not used by the Anasazi in their weaving with other fibres. Such tools as spindles, weaving combs, loom anchors, bodkins, special awls and battens, were possibly introduced and accepted in this way.

Another reason for the acceptance or rejection of traits is the relative ease, or difficulty, of learning a new set of muscular habits in order to use a new kind of artifact. For an example of the operation of this principle in the Anasazi culture we may point out the differences in manner of playing between the flute and the shell trumpet, and observe that the flute was the conventional instrument, whereas the trumpet, which was introduced much later was never widely used. A second example of the operation of this principle is the use of the metate and mano and the process of abrasion for grinding in preference to the use of the mortar and pestle and the process of pounding. The metate and mano were the earlier and more conventional tools and greatly out-number the mortars and pestles recovered from Anasazi sites. Once one method of grinding was learned it was possibly too difficult to learn and conventionally use a new one, especially when they couldn't get the same results.

It should be noted here that it seems very probable that the acceptance or rejection of traits was affected by factors not manifest directly in artifacts and other elements of material culture. For example, it is possible that the acceptance or rejection of elements was decided to some extent by the character of the particular group of individuals who were the first people to use a particular trait. We know from contemporary cultures that the possession of rank, prestige, and persuasive abilities by a group enhances the possibilities of acceptance of any element

which they are introducing.

However, we have only the vaguest notions concerning social organization among the prehistoric Pueblos. We may conjecture with some degree of probability that there was some form of social segmentation within individual pueblos because of the grouping of dwelling and storage rooms around pithouses and kivas; but because of the variation in social organization among modern pueblos it seems dangerous to conjecture whether these prehistoric social divisions were organized primarily on a kinship basis such as the clan, or were organized into religious societies.

Elimination of Traits

There were very few traits which passed out of use entirely after they had once been used to a considerable extent; although certain trait types passed out of use from one period to the next. The atlatl and dart, unfired pottery, coiled netting sacks, gee strings, gravers, and umbilical pads comprise the list of elements thus eliminated from the Anasazi culture from the Basket Maker period up to historic times.

Possibly most of these traits were eliminated because similar traits which would perform the same functions were substituted for them. For example, the bow and arrow may have been substituted for the atlatl and dart, true pottery for unfired pottery, the breech clout for the gee string, and drills for gravers.

Improvements in efficiency may have resulted from these substitutions. The introduction of the bow and arrow may have made it possible to carry a greater number of projectiles and to

shoot a greater distance than with the atlatl and dart. True pottery has the advantage over unfired pottery of less fragility and the capability of holding liquids. The bow drill makes possible the application of greater leverage on the point than the graver does. Such advantages may have been potent arguments for making these substitutions.

Relative Stability of Sectors

Not all sectors in Anasazi culture showed an equal development. Fewer innovations were introduced into some sectors, fewer traits were modified in others, and those traits which were modified went through development into fewer types in some sectors than in others.

For example, there appears to have been a great deal of originality in the development of the Ceremonial sector. Innovations constitute a larger proportion of traits in this comparatively small sector, than in any other. More new traits such as figurines, cornucopia, medicine cylinders, "owls", and "tiponi" traits without precedents in previous periods, were introduced into this sector than into any other. Almost as great a proportion of innovations were introduced into the much larger Hunting and Good Gathering sector, and into the Clothing and Ornaments sector. The smallest proportion of new elements was introduced into the Shelter sector and the Household and Personal Equipment sector.

The largest proportionate number of traits modified into new types was in the Shelter sector. Examples of such traits are the axe, maul, cists, surface rooms, and pithouses. As equal proportion of traits modified into types was in the smaller Household and Personal Equipment sector. The Hunting and Food

Gathering, and Clothing and Ornaments sectors have a somewhat smaller proportion of such traits, the Ceremonial sector the least.

A similar ratio prevailed in the various sectors with respect to the proportionate number of types into which the traits were modified. The traits in the Shelter sector were modified into the greatest number of types, such as full grooved axes, three quarters grooved axes, full grooved mauls and the like. Traits of the Household and Personal Equipment sector were not modified into quite as many types proportionately, and those of the Clothing and Ornaments, and Ceremonial sectors still less.

The Shelter sector might be considered the least stable of the sectors considered because proportionately more traits were modified into proportionately more types in this sector than in any other although there were not many innovations introduced into it. The Ceremonial sector might be considered the most stable because proportionately the fewest traits were modified into the fewest types in this sector. Changes in the other sectors were intermediate to these two extremes. The Hunting and Food Gathering sector was the second least stable, and the Household and Personal Equipment sector next. The Clothing and Ornaments sector was almost as stable as the Ceremonial sector.

Conclusions

Taken as a whole this study reveals that Anasazi culture was actually quite stable during the Pueblo periods. After a number of new traits had been introduced from outside and accepted by the culture as a whole during the early stages in dev-

elopment, the majority of changes from then on were simple slight modifications of traits, such as a change in the direction of notching of arrow points, or a change from a trough type metate with only one end open, to that with the trough open at both ends.

On the other hand, the evidence shows that throughout its development Anasazi culture was continually subject to influences from other cultures and did not develop independently of these influences. There is no period of Anasazi development during which some trait, or trait type was not introduced from other cultures. Some of these traits thus introduced were of little importance to cultural development, and many were not accepted by the culture as a whole. Examples of such traits are the labrets and cut shell pendants introduced from the Hohokam culture. However other traits introduced from the south brought about radical and far reaching developments in Anasazi culture. Such changes were brought about by the introduction of corn, beans and cotton, new methods of manufacturing pottery, and the use of the true loom in weaving. The introduction of these elements from outside often led to developments inside the culture. The improvement in storage and cooking facilities, the modifications in pottery and storage rooms has already been discussed. The ramifications of other introductions, such as weaving with the true loom through the development of additional tools and patterns of use, have also been noted. The acceptance of these traits and others was possibly governed by such factors as compatibility.

In other words, Anasazi culture was changed considerably during the course of its development through the introduction of

traits and trait types from other cultures. Other developments were worked out independently. However, in the final analysis the operation of such principles as compatibility rendered Anasazi cultural development so unified that it appears to have developed independently of those outside influences which were actually very important factors in this development.

